MEMORANDUM

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To: Matt Swapp, Utah Department of Transportation Planning Manager

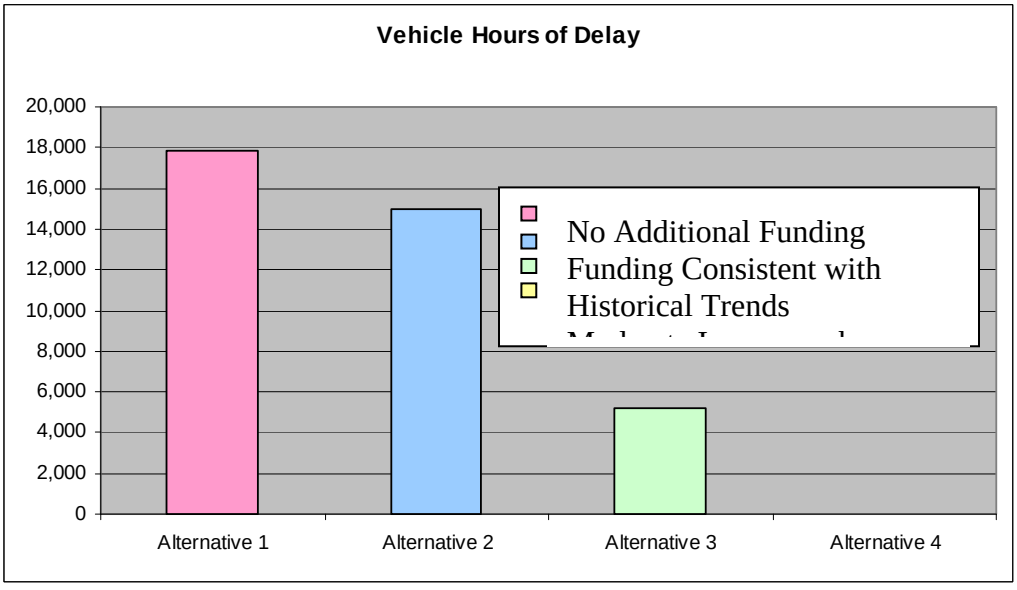
Date: April 27, 2007

Subject*:* ***Description of Scenario Statistics***

Introduction

The purpose of this memo is to describe the process by which the statistics located in chapter 5 of *Utah Department of Transportation's Long Range Plan* were calculated. This memo is not intended to detail the actual calculations, but rather to describe a broad view of how the numbers were generated. Spreadsheets used to create these calculations are also included in the appendix of the UDOT Long Range Transportation Plan.

Chapter 5 of *Utah* Department of Transportation's Long Range Plan describes the analysis of the four funding options for capacity improvements on state highways in rural Utah. It includes the following graph showing the increase in daily vehicle hours of delay. It also includes a dollar amount associated with that delay, for example alternative 1 cost of congestion is $75 million dollars per year.



Year 2030 Vehicle Hours of Delay

Vehicle hours of delay are the total daily congested travel times of all vehicles in rural Utah. The previous graph shows the increase in congestion related delay in the year 2030 for the different funding scenarios. Alternative 1 has the largest increase of 17,800 congested vehicle hours of travel over the 2004 level. In scenario 4 the 2030 congested vehicle hours of travel is lower than the 2004 value, so that alternative reduced vehicle hours of delay. Delay is calculated by considering all roads that are congested in the base year, 2004, and summing the travel times on these roads in the year 2030. Each funding alternative allows a different level of roads to be improved so that travel time (and delay) is reduced. Unlike the Long Range Transportation Plan, each funding level simply "improved" the roads with the greatest volume to capacity ratio. In the actual Plan, other factors were also considered including comments from each UDOT region, comments from the public, safety and pavement condition, and other related data and information.

Annual Cost of Congestion

The annual cost of congestion is determined by taking the increase in vehicle hour of delay and multiplying it by 365 for the number of days in a year. That value is the vehicle hours of delay for the year. A dollar amount is assigned for the value of people's time. Generally, the value of time varies between approximately $8 per hour to over $16 per hour based on various national studies. In the absence of significant research into the value of user travel time in Utah, an approximate value of $12 per hour was used. The resulting value of congestion was then rounded to the nearest $5 million to reflect the approximate nature of this value. Alternative 1 had an annual cost of congestion of $75 million (above today's congestion level), while alternative 4 had a value of zero since congestion levels under this amount of funding would be less than the congestion level today.